

Addressing the Barriers to Agile Development in DoD

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[MITRE Defense Agile Acquisition Guide](#)

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Report Documentation Page

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Purpose / Outline

How DoD Acquisition professionals can apply Agile concepts within the unique and complex Defense Acquisition Environment

- **DoD IT Acquisition Challenges**
- **Agile Overview**
- **Program Structure**
- **Requirements**
- **Contracting**



DoD IT Acquisition Challenges

- **Change in IT technology and operations is outpacing DoD IT acquisition development**
- **IT programs are subject to extensive documentation, reviews, and oversight that inhibits speed and agility needed for IT**
- **Major DoD systems average 38% cost, 27 month schedule overrun with >\$1B/year spent on programs that are cancelled***
- **Congress is demanding DoD to reform IT acquisition**
 - Early and continual user involvement
 - Multiple, rapidly executed capability releases
 - Early, successful prototypes; evolutionary approach
 - Modular open systems approach

DoD: Delivering Yesterday's Technology Tomorrow

* Assessments of Selected Weapon Programs, GAO-14-340SP: Published: Mar 31, 2014

Agile Acquisition

Small, dynamic, collaborative Gov't/Industry teams focused on:

Small, Frequent Releases



Iteratively Developed

Review Working Software



Vice Extensive Docs

Responsive to Changes



Operations, Technology, Budgets

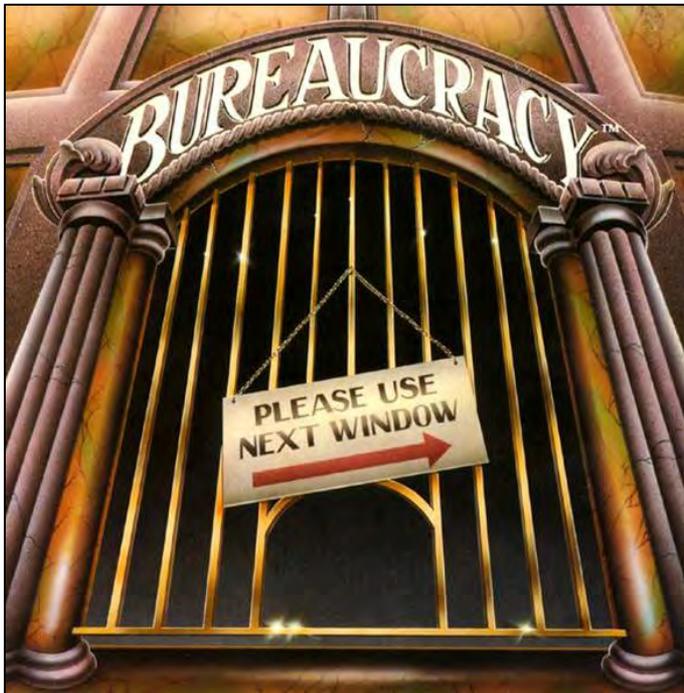
Active User Involvement



To Ensure High Ops Value

DoD Barriers to Agile Acquisition

- Heavily regulated environment of acquisition policies and laws
- Bureaucratic, laborious, and slow processes
- Command-and-control governance structure and authorities



Agile Runs Counter to DoD's Acquisition Environment

- Iterative releases vs big bang waterfall
- Working software vs extensive docs
- Respond to changes vs upfront plans of budgets, requirements, designs

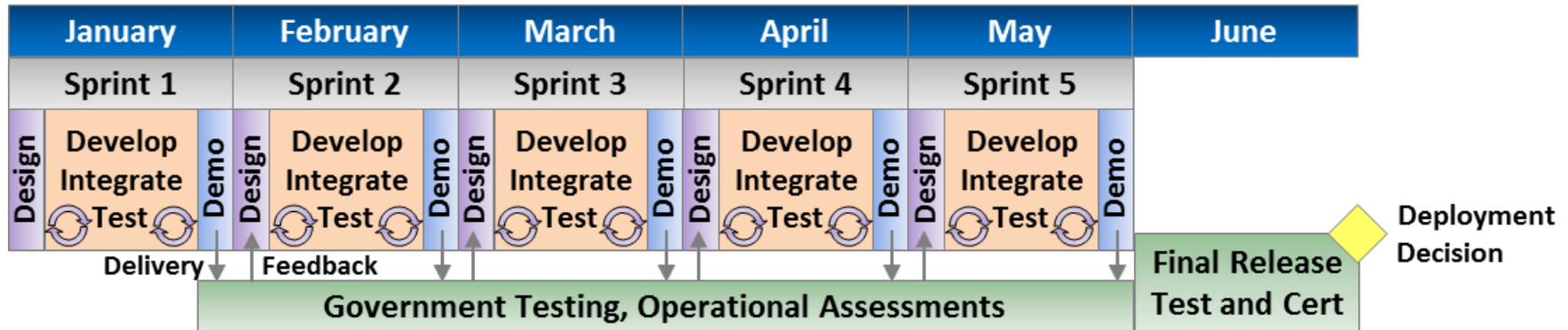
Programs Should Consider Agile When...

- Requirements can be decomposed into small tasks
- Ops environment supports small, frequent capability deliveries
- Users can engage in development on CONOPS and feedback
- Programs can use existing infrastructure, focus on applications
- Industry has relevant domain expertise in Agile practices
- Decision authority supports Agile and tailored processes



Structuring an Agile Program

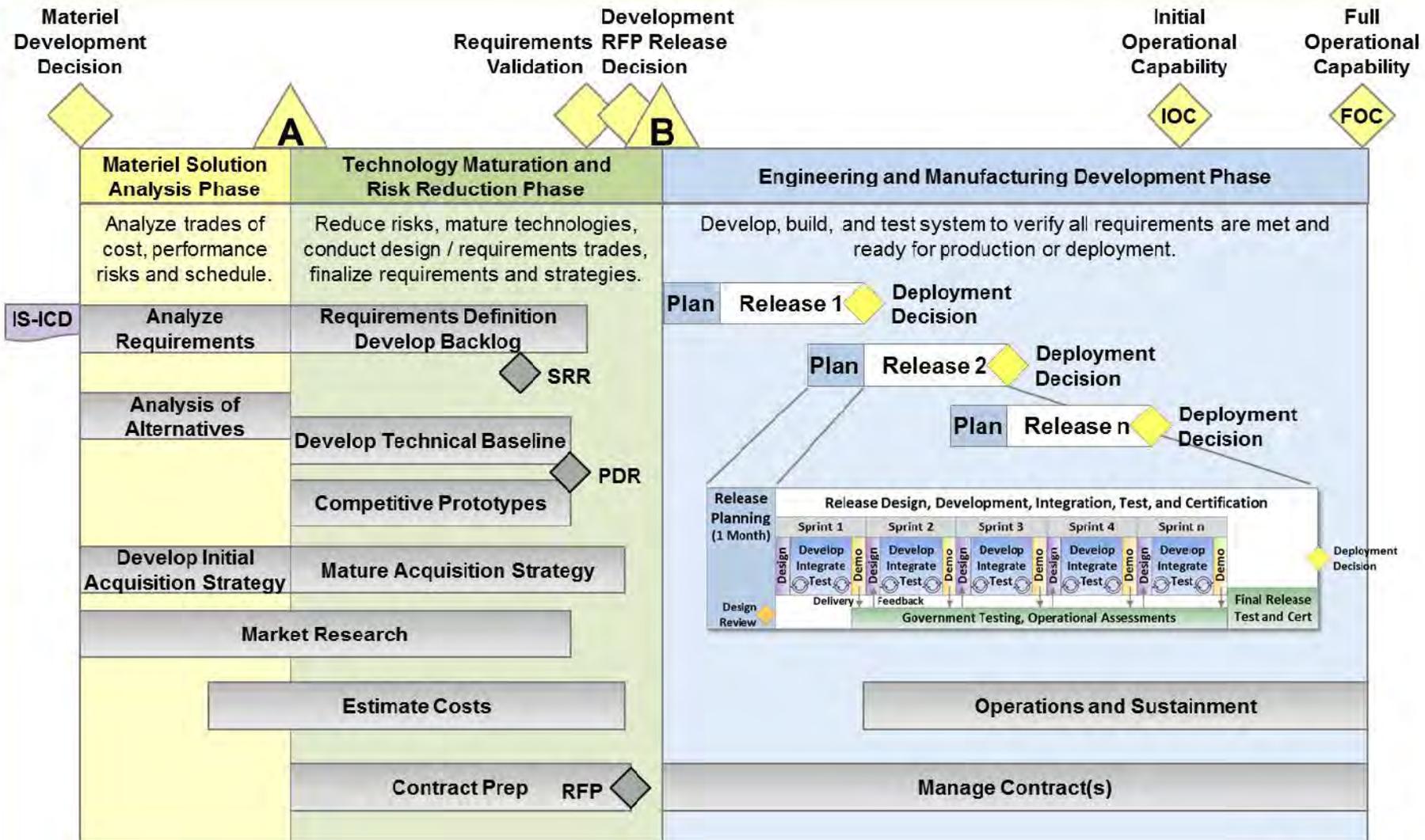
Time Boxed Release



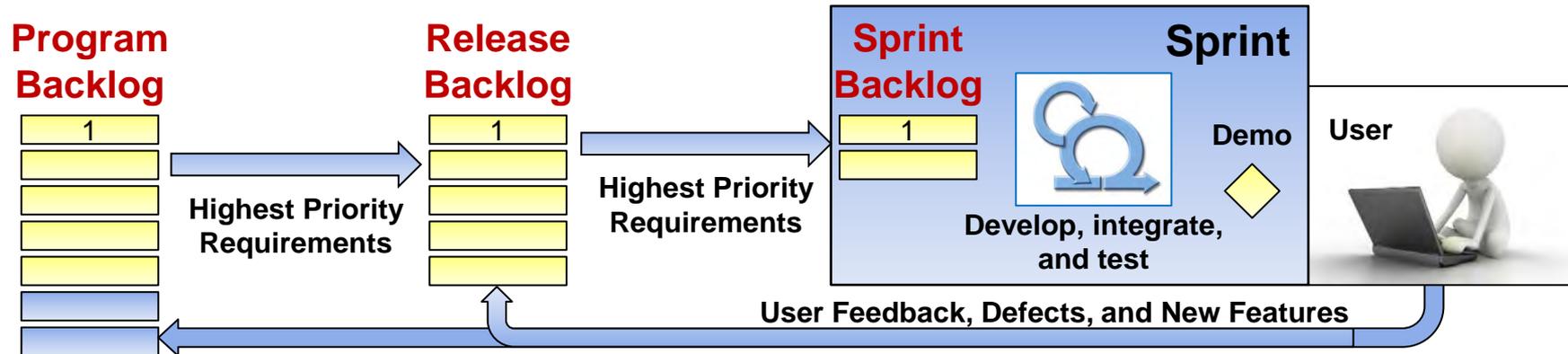
- **Notional: 6 Month Release with 4-Week Sprints**
 - Continual development, integration, and testing
 - Monthly demonstration of capabilities to users
- **Gov't testers, certifiers, and users involved early and often**
 - Minimizes work and surprises at the end of the release

Release Length Based on Program, Ops, and Technical Risk

Potential Agile Structure



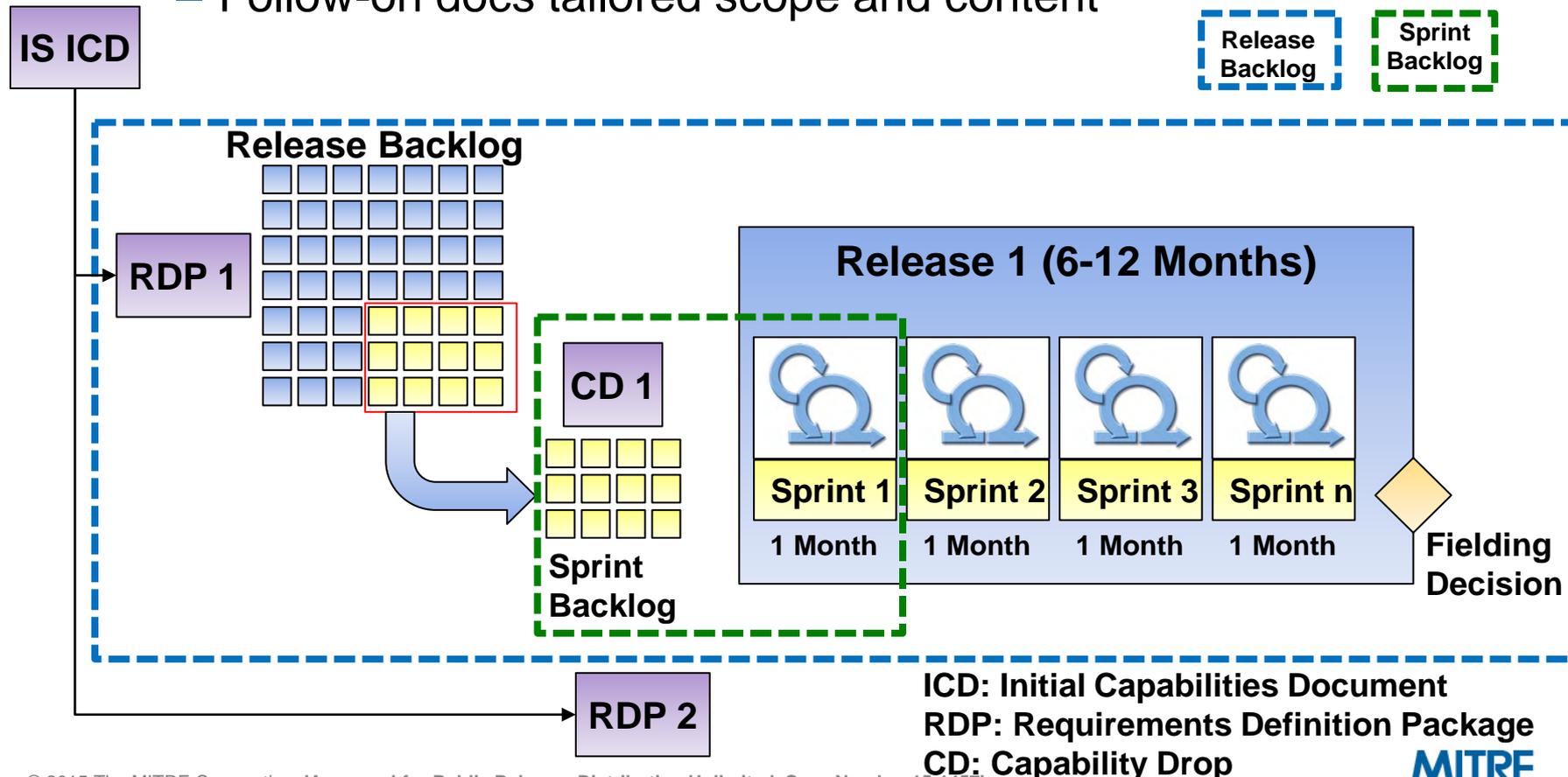
Agile Requirements Backlog



- An evolving, prioritized queue of requirements
- Integrates operational and technical requirements
- Actively managed with user inputs and reviews
- Development team commits to scope of work for a sprint
- Sprint scope is locked, while release scope may change
- Sprint demos may identify new features or defects which would be added to the release or program backlogs

JCIDS IT Box Model

- Streamlined requirements process for software >\$15M
- JROC approves IS-ICD – delegates approvals of follow-on docs
 - Follow-on docs tailored scope and content



Contract Vehicles

Multiple Award Contract



IDIQ contract awarded to multiple contractors who compete for work via task orders

Single IDIQ Contract



IDIQ contract awarded to single contractor with task orders to develop releases

GSA BPA



Existing GSA Schedule contract (eg. Sched 70) w/releases developed via call orders

- **Consider a PEO, portfolio, or enterprise-level contract vehicle**
 - Streamlined contracting processes result in faster awards, deliveries
 - Standardized, effective, and efficient contract management

Contracting for Agile – Service vs Product

Services (FAR Part 37)	Product-based
<p>Pay for the time and expertise of an Agile development contractor</p>	<p>Contract for a defined software delivery product</p>
<ul style="list-style-type: none"> • Fixed priced • Cost-reimbursement term • T&M 	<ul style="list-style-type: none"> • Firm Fixed Price • Cost-reimbursement completion
<ul style="list-style-type: none"> • Contractor is selected based on the strength of the development team • Enables a teaming environment between the Government and contractor • Appropriate when the Government wants to drive the development strategy • Responsive to requirements changes • Close collaboration required to ensure an integrated solution is delivered 	<ul style="list-style-type: none"> • Contractor selected on technical solution • Requires upfront requirements definition for contractor cost estimates • Difficult to hold contractor accountable for delivery by directing Agile methods • Requirements changes requires contract negotiation, ECPs, and/or mods • Diminishes flexibility and negotiation power of the Government
<p>Best option for Agile</p>	<p>Very difficult for Agile</p>

Services Contract Type

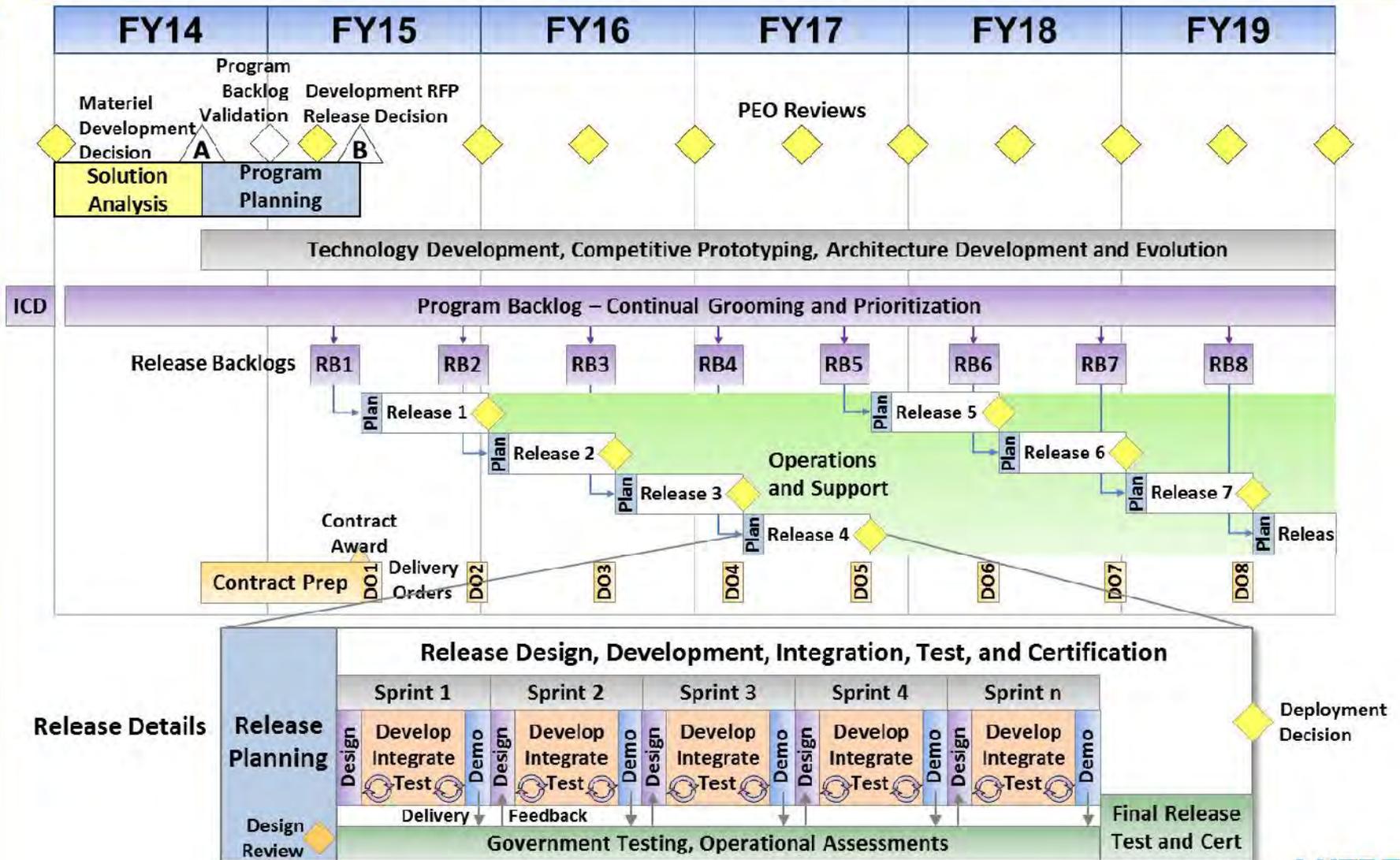
Contract Type	Pros	Cons
FFP Services	<ul style="list-style-type: none"> • Generally preferred contract type in DoD • Easiest contract type to manage 	<ul style="list-style-type: none"> • Requires deliverables for payment (e.g., monthly report) unless progress payments are authorized • Contract amount cannot be changed without contract modification • Cannot easily change labor mix and # of hours
Cost Reimbursement Term (Level of Effort)	<ul style="list-style-type: none"> • Flexibility to change labor mix and hours under contract ceiling • Does not require a deliverable for payment 	<ul style="list-style-type: none"> • Contract ceiling may be difficult to establish, which can affect upfront fee determination • Requires closer Gov't monitoring • Requires a certified cost accounting system among other FAR requirements • Less incentivize for contractor to control
Time-and-Material (T&M) (Labor Hour)	<ul style="list-style-type: none"> • Flexibility to change labor mix and hours under contract ceiling • Does not require a deliverable for payment 	<ul style="list-style-type: none"> • Unpopular contract type across the Gov't • Requires close Gov't monitoring • Contractor is not incentivized to control costs

Summary

- **Using Agile development is an attractive option for IT programs**
 - Regular capability deliveries
 - Responsive to changes in operations, tech, and budgets
 - Active user involvement and empowered teams
- **Structure 6-12 month releases and tailor processes**
- **Dynamic and iterative requirements management**
- **Portfolio services contracting for industry partnership**
- **Tailoring DoD acquisitions to enable Agile adoption, successful IT**
- **For additional info, see [MITRE Defense Agile Acquisition Guide](#)**

BACKUP SLIDES

Potential Agile Structure



Potential Contract Construct

- **Portfolio-level agile development contract**
 - Quick execution of orders for each release (e.g., 6 months)
 - Single award for quick orders and consistent contractor
 - T&M for max flexibility (transition to FFP or CR after initial period)
 - Scope/requirements can adjust over time

- **Services-based contract**
 - Contract for the services of the development team
 - Cost-boxed and time-boxed releases and sprints
 - Requirements in product backlog are flexible
 - Structure releases (e.g. 6 months) via separate task orders

Agile Overview

- **Leading software methodology – begin in 2001**

- **Core Elements**
 - Small, frequent capability releases
 - Valuing working software over comprehensive documentation
 - Responding rapidly to changes in ops, technology, and budgets
 - Actively involving users throughout development

- **Small, empowered, collaborative teams**
 - Follow disciplined process
 - Dynamic, tailored, and evolving
 - Continual process improvement



Five Prerequisites for Agile Acquisition

- 1. Small, frequent capability releases**
- 2. Embrace change**
- 3. Partnership: requirements, acquisition, contractor**
- 4. Small, empowered, high-performing teams**
- 5. Leverage a portfolio structure**

